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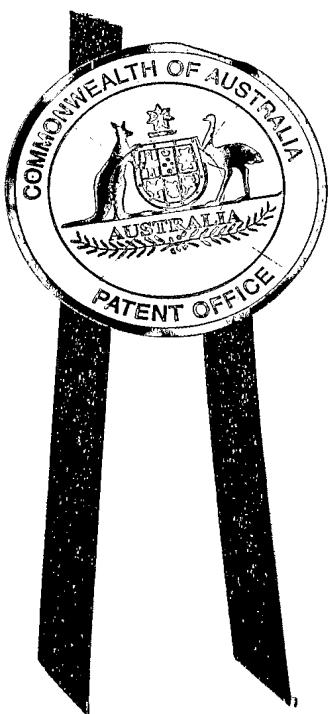


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I, JANENE PEISKER, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004900928 for a patent by JOHN GRIFFITS and YVONNE GRIFFITS as filed on 25 February 2004.



WITNESS my hand this
Fifth day of April 2005

JANENE PEISKER
TEAM LEADER EXAMINATION
SUPPORT AND SALES

Title:
Enhanced Automated Key Selection System.

Terminology:

- 5 The use of one at least examples (or abbreviations for same) should be understood as meaning 'one at least non-limiting example(s)' The use of one at least examples in this specification preferably does not necessarily imply that said examples are essential to the invention, and/or preferably that said one at least examples (unless otherwise documented) are the preferred means. Furthermore when a plurality of examples are described it should be understood that in preferably one at least embodiment, 10 none of said plurality may be used; and/or that in one at least embodiment preferably one at least of said plurality may be used. It should also be understood that the use of the singular of a word and/or phrase preferably may also be understood to reference the plural; and use of the plural preferably may be understood to reference the singular, where appropriate in the context used.
- 15 **Description of the Invention:**
The present invention preferably seeks to describe additional **Key Grouping Means** (KGM) and/or **Key Control Means** (KCM) to enhance and/or provide alternatives to those described in co-pending PCT AU03/01029 by the present inventors, Titled: "*Identification and Selection of keys for use with locks*". This document is incorporated in its entirety into this specification by way of reference. The numbers used in the present specification refer to the drawings of the present specification and not necessarily to those depicted in the document incorporated by reference.
- 20 The present specification preferably seeks to describe alternative means of electronically identifying one at least keys and/or of selecting one at least keys using automated means.
- 25 The present invention preferably allows that one at least means described for said PCT AU03/01029 may be incorporated into one at least means described for the present specification. The invention preferably allows that one at least means described in the present specification may be incorporated in part at least into one at least means described for said AU03/01029.
- 30 The present invention preferably seeks to describe a **Security Check Validation Means** to verify that one at least security personnel (as a non-limiting example) have attended one at least premises (as a non-limiting example) one at least times, and preferably the time or times of said attendance's. The means preferably may use part at least of the means allowed for in this specification (including means incorporated by way of reference). As a non-limiting example, one at least Key Control Means (KCM) preferably may include a secure processing means and/or secure real time clock/calendar means. One at least Lock ID Means coupled to said premises preferably may be written with information (eg writeable RFID Transponder). Said write preferably may be at plural times. A Second Write preferably may not modify part at least of a First Write. Written information preferably may be erased. Said erase is preferably password protected. For example, when the operator (for example) leaves the premises at night they may erase part at least of the information within said Lock ID Means (and/or other electronic means). One at least security personnel may subsequently attend said premises, and preferably perform a **Visit Validation Process**, that as a non limiting example preferably may include part at least of:-
- 40 45 read said Lock ID (and/or other electronic means) into one at least Key Control Means (and/or other electronic means). One at least Public Key Encryption Codes pertaining to said Lock ID Means has preferably been previously entered into said Key Control Means (and/or other electronic means). Said KCM (and/or other electronic means) preferably reads, preferably tamperproof date/time, from said secure real time clock/calendar means, and preferably encrypts in said secure processing means, one at least of:- Lock ID Code, Current date, Current time, and/or Other Information, as non-limiting examples. The encrypted information is preferably written, in part at least to said Lock ID Means (and/or other electronic means).
- 50 If said security personnel is required to perform one at least tasks at said premises, they preferably may be required to perform part at least of said Visit Validation Process when they complete said task (eg

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internal inspection). One at least security personnel preferably may be required to perform one at least subsequent Visit Validation Processes (eg if they check one at least premises on multiple after hours occasions).

- Said operator (for example) preferably may return to said premises subsequent to said previous departure (eg the next morning), and preferably read the information written to said Lock ID Means by said one at least Security Personnel, preferably decode the stored information and verify the times that one at least Lock ID accesses (and presumably visits to said premise) took place. Said decoding preferably may include KCM processing and/or processing by one at least other processing means (eg PC). A record of this information preferably may be kept (eg in one at least KCM and/or PC's and/or Internet Means). Information captured by one at least KCM preferably may be transferred to one at least User Controlled Data Processing System's (eg PC) and/or to one at least Internet Means.

- The present invention preferably seeks to describe a Key Tracking Means that as a non-limiting example preferably may electronically monitor to whom one at least keys has been issued (and preferably when); and/or the electronic ID of said one at least keys; and or/or whom as returned one at least said keys (and preferably when). As a non-limiting example, when one at least keys is issued to one at least persons, the Key ID is preferably read in to an electronic processing means (eg KCM). The details of the person(s) provide with said keys are preferably also entered (eg KCM keyboard entry, reading one at least RFID transponder means known to belong to said person(s), eg watch with transponder, security access means). The date/time of said issue is preferably concurrently stored. A similar process preferably may be used to record the return of one at least keys, including by whom and when. Information stored in said KCM (and/or other processing means) preferably may be transferred to (and/or from) one at least second processing means (eg PC and/or Internet).
- 25 The present invention preferably seeks to describe a Key Return Means to facilitate the return (as a non-limiting example) of one at least lost keys. As a non-limiting example, one at least key users preferably may register their details (eg name, address, telephone, fax, e-mail address) with one at least service providers) and one at least Key ID Means with one at least service providers. Lost keys preferably may be returned to said service provider, one at least lost Key ID means is preferably read by said service provider, and said key(s) preferably returned to their owner.

- The present invention preferably seeks to describe an advertising means that preferably may be coupled to one at least Key ID Means, and/or Lock ID Means and/or Key Grouping Means and/or Key Control Means. As non-limiting example:- a) one at least Key Control Means preferably may include i) one at least web addresses (eg siliconcerers.com) on part of the external surface of its enclosure, and/or ii) one at least web addresses and/or advertising messages preferably may be displayed on one at least KCM Display Means part at least of the time; and/or b) One at least Key and/or Lock ID Means preferably may include advertising (eg one at least pharmaceutical item logos).
- 40 The preferred embodiment of said PCT AU03/01029 include a means of coupling an indicator means (eg one at least LED's) to one at least keys, wherein the indicator means is preferably electronically addressable. The indicator means and its decode/switching logic are preferably permanently bonded to one at least keys. The key with its coupled electronics/indicator means may be coupled (preferably reversibly) to one at least key grouping means. The key control means preferably may i) read the key ID means and/or ii) electronically address the indicator means to switch it on /off. The preferred method includes an electrical connection between the key electronics and the KGM and/or KCM. Wireless means preferably may also be used, however, these may require a power source to be connected to one at least keys.
- 45 50 The first part of the present invention is described with reference to Figure One of the drawings. The invention preferably seeks to describe a means wherein one at least keys (1) may be attached (preferably by permanently bonding) to one at least electronically accessible Key ID Means (2) that may be read (and preferably written to) using electronic means (eg key control means).

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The preferred embodiments of said Key ID means (2) preferably may include one wire ID Means (eg from Dallas Semiconductor) and/or RFID means (eg transponders manufactured by EM Microelectronics).

- 5 Instead of the indicator means being an integral part of the key as described in PCT AU03/01029, one at least Indicator Means (3, 3a, 3b) of the present invention preferably may be an integral part of one at least KGM (4) and/or KCM (5).

- 10 The invention preferably does not preclude one at least Indicator Means being reversibly attached to one at least KGM and/or KCM.

The invention preferably does not preclude one at least Local Key Means (LKM) described for AU 03/01029 being coupled to the means described for the present invention.

- 15 One at least Key Grouping Means (4) preferably allows one at least keys (1) to be attached (preferably reversibly) using one at least Key Restraining Means (6, 6a, 6b). One at least Key Restraining Means preferably may not include an electrical connection between said KGM (4) and the electronic ID Means (2) coupled to one at least keys (1).

- 20 One at least Key Restraining Means (6) preferably includes flexible and/ or resilient materials - eg plastic and/or metal (eg braided).

One at least Key Restraining Means preferably may include fibroptic means (eg arranged to allow light to be emitted along part at least of said restraining means).

- 25 One at least said Key Restraining Means (KRM) preferably may include one at least electrical conductors and or illumination means.

- 30 One at least said Key Restraining Means preferably may be a first colour and one at least second Key Restraining Means preferably may be a second colour.

One at least KRM preferably may include glow in the dark materials. One at least said colours preferably may include one at least fluorescent colours.

- 35 Figure One depicts as a non-limiting example a Key Grouping Means (4) that preferably allows one at least keys (1) and/or KCM (5) to move in part at least around the periphery of said KGM. Said movement is preferably facilitated by one at least Key Carriage Means (9, 9a, 9b) that are preferably retained and/or guided by one at least track means (12a) and/or (12b).

- 40 • This example embodiment is similar to one of the KGM embodiments described in said AU03/01029, wherein the keys/electronic are attached to a carriage means that may slide around said KGM. However, in the AU 03/01209 embodiment, said carriage means preferably picks up ground and power from electrical conductors around the periphery of said KGM.

- 45 In KGM (4) of the present example, the ground, and/or power, and/or one at least electrical signals are preferably conducted from a central hub means (8) along one at least KGM Conductor Means (eg, 7, 7a, 7b, 7c) to one at least Indicator Means (eg, 3, 3a, 3b) and/or to one at least KCM Interface Means (13). One at least KGM Conductor Means is preferably flexible and resilient. One at least KGM Conductor Means preferably includes one at least electrical conducting means. A non-limiting example of a preferred material for one at least said KGM Conductor Means preferably may include one at least layers of i) mylar (and/or similar) and one at least electrical conducting means and/or ii) one at least conducting wires and one at least insulating means.

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One at least Indicator Means (3, 3a, 3b) and/or one at least KCM Interface means (13) are preferably attached to one at least Key Carriage Means (9, 9a, 9b, 9c) and preferably may move in unison with said one at least said Key Carriage Means.

- 5 One at least KCM Interface Means (13) preferably may facilitate the connection of one at least KCM (5) to one at least KGM (4). Non-limiting examples of one at least KCM Interface Means (13) preferably may include one at least of i) hardwired, ii) plug/socket means (eg modifying the means described in said AU 03/01029 for coupling a Local Key Means to a KGM to accommodate the number of electrical conductors to link the KCM with the KGM of the present embodiment).

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The invention preferably includes one at least means of addressing one at least indicator means (3, 3a, 3b). A non-limiting example of a preferred addressing means may include one at least address decoders and/or shift registers, preferably located in one at least central hub means (8). Decoding/addressing is preferably facilitated by one at least Key Control Means (5), preferably in conjunction with a CPU means preferably coupled to said Key Control Means (5).

15

There is preferably a means to restrict the motion of one at least objects coupled to one at least KGM. A non-limiting example of a Motion Restriction Means preferably may include one at least (in the present example, two) projections (10a, 10b) from the surface of the KGM enclosure that preferably may restrict the movement of one at least means able to move around the periphery of one at least KGM (4). Non-limiting examples of said means able to move may include Key Carriage Means (9, 9a, 9b) and/or KCM Carriage Means (9c). This preferably may prevent said KGM Conducting Means from being over stressed as a non-limiting example.

20

25 A non-limiting example of a means to facilitate the i) automated selection of one at least keys on a key grouping means, and/or ii) automated determination of the function of one at least keys, preferably may include:-

30

1. An electronic key ID means (2) may be attached to a existing user key. The invention preferably allows that one at least keys may be supplied to one at least users with said electronic ID means attached and/or otherwise integrated into said key.

35

2. A means, preferably coupled to one at least Key Control Means, facilitates the reading of said electronic Key ID. Said AU 03/01029 describes a non-limiting means for reading RFID transponders by one at least KCM. A non-limiting example of a means to read *one-wire* means preferably may includes moulding part of one at least Key Control Means (5) to fit one at least surfaces of one at least electronic Key ID Means (2). Said moulded shape preferably may be placed over said Key ID means and preferably includes a power and ground electrode (preferably connected to and/or able to be connected to ground and power of the KCM) positioned such that it may make contact with ground and power electrical contacts on said electronic Key ID Means (2).

40

3. One at least electronic Key ID means preferably may be read by one at least Key Control Means and said read information preferably may be stored, in part at least in memory storage means (preferably in the format of an electronic database). Said information preferably may be edited subsequently.

45

4. Information pertaining to one at least locks that one at least keys may operate are preferably entered into one at least KCM. Said lock information may preferably be electronically stored using a means that permits it to be subsequently associated by electronic data processing means with one at least Key ID means. The preferred method of entering lock information includes the use of one at least KCM to read (eg using RFID reader) the electronic Lock ID coupled to one at least locks that said key may operate. Other non-limiting examples of entering lock information preferably may include typing a description of the target lock into a

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keyboard means coupled to one at least KCM and/or voice input description of one at least target locks. There is preferably a means to subsequently edit said lock information.

5. To determine information pertaining to one at least locks operable by one at least keys, the electronic key ID means coupled to one at least keys is preferably read by electronic means (eg those coupled to one at least KCM). Said electronic means preferably examines previously stored accessible information to determine:-

- If the electronic Key ID means has previously been stored in accessible memory.
- If information pertaining to the target lock of said key has been previously stored in accessible memory.

10. If the Key ID information is not accessible by said KCM, the user is preferably advised (eg display and/or speaker means).

15. If the Key ID information is accessible to said electronic means and the Lock ID information is not accessible, the user is preferably advised (eg display and/or speaker means).

If the Key and Lock ID information are both accessible to said electronic means, the user is preferably provided with information facilitating determination of the target lock(s) of said key (eg display means and/or speaker means describing the location of one at least target locks).

20. 6. When attaching one at least keys to one at least Key Grouping Means it is preferable that one at least Key Control Means may determine the electronic address of one at least indicator means associated with one at least Key Carriage Means (9) said key may be attached to.

- The preferred method allows KCM to instruct the KGM to illuminate the LED coupled to one at least available Key Carriage Means (9a).

- Said illumination preferably may be automatic (eg. using database of unused locations) and/or under user control (eg user may enter one at least key board commands to sequentially illuminate one at least Indicator Means, until the Indicator Means associated with the target Key Carriage Means is illuminated).

25. 30. • The user preferably attaches one at least keys (1) to said Key Carriage Means (9) using the associated Key Restraining Means (6).

- The user preferably confirms (eg keyboard entry) that said one at least keys has been coupled to one at least Key Carriage Means (9) associated with the presently (or most recently) activated (eg illuminated) Indicator Means (3). The address of said Indicator Means is preferably associated with said Key ID means in memory storage means accessible to said Key Control Means. This information preferably may be edited subsequently.

40. 7. When the user needs to locate the key on one at least KGM that operates one at least locks, said user preferably may enter information associated with said lock into one at least Key Control Means. The preferred method is to scan (eg using KCM RFID Reader) the electronic Lock ID that is preferably located in the environs of the target lock. The KCM preferably examines previously stored accessible information to determine:-

- If the Lock ID means has previously been stored in said KCM.
- If information (eg Key ID Means) pertaining to one at least keys that may operate said lock has been previously stored in memory storage means accessible to said Key Control Means.

45. 50. If the Lock ID information has not been previously into said KCM, the user is preferably advised (eg display and/or speaker means). The user preferably may be given the opportunity to enter information about one at least keys that may operate the lock coupled to said Lock ID. For example a user may visually scan keys coupled to one at least user accessible KGM's and determine if a suitable key is attached. If no key is present they preferably may terminate the process (eg keyboard entry). If one at least appropriate keys

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- 5 is coupled to said one at least accessible KGM's the user preferably may cause the KCM to illuminate the indicator means associated with the appropriate key(s). The Lock ID and Key ID means are then preferably electronically associated with one another in memory storage means. If one at least appropriate keys is one at least user accessible keys that is not presently attached to said KGM, the user preferably may be able to activate the relevant processes to enter Key ID information into one at least KCM's (if not previously entered) and preferably associate it with the previously scanned Lock ID information.
- 10 If Lock ID information has previously been programmed into said KCM and the Key ID information is not accessible to said KCM, the user is preferably advised (eg display and/or speaker means). The user preferably may be provided the opportunity of entering the relevant key information and/or attaching said key to one at least KGM.
- 15 If the Key ID and Lock ID information are both accessible to one at least KCM's, the user is preferably provided with information facilitating determination of the relevant key. The preferred means with the present example is to illuminate the LED (3) associated with the Key Carriage Means (9) that is coupled to the appropriate key (1).
- 20 The example process described above is preferably not limited to the example embodiment of Figure One, and as a non-limiting example, preferably may be applied in part at least, to one at least of the other examples described in this specification and/or said AU 03/01029.
- 25 Said AU 03/01029 describes means for password protecting access to one at least functions of one at least Key Control Means. The present invention preferably allows for a Password Protection Means dependant on the presence of one at least First Electronic Means (eg Key Control Means) and one at least Second Electronic Means (eg Wristwatch), wherein one at least means of communication between said Second Means and said First means is preferably restricted in the normal course of use of both means, and said First and Second Means preferably may communicate to facilitate access to restricted functions coupled to one at least First Means and/or Second Means. Said Second Means is preferably physically separate to said First Means and preferably unlikely to be misplaced concurrently with said First Means should said misplacement occur.
- 30 A non-limiting example of said Second Means preferably may include a watch (eg a Swatch watch that includes an RFID transponder). As a non-limiting example, one at least KCM may activate part at least of its functions (eg automated key selection) when said Second Means is brought into close enough proximity for said KCM to read (eg using its RFID reader) one at least Transponder Means coupled to said Second Means (eg watch) when said transponder includes the required information (eg digital code) to facilitate said activation.
- 35 40 As a non-limiting example, when a user wants to automatically select a key on their KGM (and/or determine the function of one at least keys) they may activate the function of one at least KCM by passing it in close proximity to their wristwatch.
- 45 45 It is preferable that one at least Password Activation Means may be required for one at least KCM (as a non-limiting example) to commence communication with one at least Second Means (eg for KCM to activate its RFID). As a non-limiting example of said Password Activation Means, the user may need to press one at least keys coupled to one at least KCM to enable the RFID Reader coupled to said KCM. The invention preferably allows that one at least means activated by one at least Password Activation Means may be terminated (as a non-limiting example, said RFID reader preferably may automatically time-out after a predetermined period).
- 50 As a non-limiting example of a means for a user to enter information (eg a command) into one at least KCM, the invention preferably allows for the length of time and/or number of times, one at least first electronic input and/or output means (eg RFID reader) may access (eg read) one at least second

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electronic input and/or output means (eg RFID transponder). This is referenced as **Modulated Reader Input**. For example the user may continually scan a Lock RFID Transponder and/or Watch Transponder for more than one second (for example) to indicate a first command input and less than a second (for example) to indicate a second command input. The invention preferably allows for a 5 flashing illumination means (eg LED on enclosure of one at least KCM) to facilitate user timing of said **Modulated Reader Input**. The invention preferably allows for **Modulated Reader Input (MRI)** means to be used with other RFID and/or other electronic processing mean. For example, said MRI preferably may be used with one at least **Sock Control Means** and/or **Remote Undressing Means** (pending WO 04/000050 by the present inventors, that is incorporated into this specification 10 by way of reference).

- One at least Key Restraining Means (6) preferably attaches (eg at one at least ends) to a **Restraining Termination Means** (26) that preferably facilitates attachment of one at least Key Restraining Means (6, 6a, 6b) with one at least Key Grouping Means (4). One at least **Key Restraining Interface Means** (11) preferably facilitates said attachment. Said attachment is preferably reversible. A non-limiting example of a **Restraining Termination Means** and **Key Restraining Interface Means** is described with reference to Block Drawings (20), (21), (22), (23), (24) of Figure One. In the example embodiment, one at least **Restraining Termination Means** (26) preferably includes a **Coupling Means** (33a) to facilitate attachment to one at least Key Restraining Means (6, 6a, 6b). A preferred method may be 20 injection moulded plastic enclosing the end of one at least said Key Restraining Means (6). Said **Restraining Termination Means** (26) preferably includes an **Attachment Means** (33b) to facilitates linking (preferably reversibly) with said **Key Restraining Interface Means** (11). The preferred linking means includes a **Hole Means** (32) that preferably may mate with **Latching Means** (28) coupled to one at least **Key Restraining Interface Means** (11). Block drawing (21) depicts several cross sections of 25 an example embodiment of a **Restraining Termination Means** (26), wherein **Restraining Termination Means** view (26a) is the same view shown for the **Key Grouping Means** in Block drawing (51), and view (26b) is the formed by rotating 90 degrees around the long axis of view (26a). Block drawing 21 also shows a **Key Restraining Interface Means** (11) that includes a **Interface Cavity Means** (50) to preferably receive **Restraining Termination Means** (26) that preferably may be held in place with 30 **Latching Means** (28), that in the present example may move into **Hole Means** (32), locking **Restraining Termination Means** (26) in place. **Latching Means** (28) is preferably held in place by one at least **Internal Force Means** (27) (eg spring steel, plastic). Block drawing (20) depicts an example 35 **Key Restraining Means** (11) with a **Restraining Termination Means** (26) in place.
- 35 The invention preferably allows for a **Key Restraining Release Means** to detach one at least **Restraining Termination Means**. A non-limiting example of said **Key Restraining Release Means** preferably may include an **Opening Means** (29) that permits an **External Force Means** (eg small metal or plastic pin) (30) to be inserted and depress **Internal Force Means** (27) into **Latching Cavity Means** (31), preferably releasing **Latching Means** (28) from **Hole Means** (32). Block drawing (24) 40 shows a view of the external surface of **Key Restraining Interface Means** (11) together with **Opening Means** (29).

- 45 The insertion and/or release of one at least **Restraining Termination Means** (26) from one at least **Key Restraining Interface Means** (11) preferably may be facilitated by automated means. A non-limiting example of said automated process preferably may include the use of Shaped Memory Alloy (SMA), for example, Nitinol wire (34) coupled to **Internal Force Means** (27) at location (35b) and coupled to anchor means (35a). Said SMA preferably retracts **Internal Force Means** (27) when a suitable electric current is passed through said Nitinol wire. Block drawing (22) depicts an example of a **Key Restraining Interface Means** (11) that includes both automated (34) and manual release (29) means. 50 The example of Block drawing 23 depicts an example of an automated only means.

Figure One of the drawings also depicts non-limiting examples of other means that preferably may be coupled, in part at least, to one at least **Key Grouping Means** (4). Block Drawing (51) shows a cross section formed by a plane coming out of the page through points A1 and A2 of KGM (4). Block

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Drawing (52) shows a cross section formed by a plane coming out of the page through points B1 and B2 of KGM (4).

- The Key Restraining Means depicted in the drawing preferably may allow one at least associated keys to have a fair degree of movement relative to the KGM and in particular the Illumination Means (3). In one at least embodiments of the invention it is preferable that the Indicator Means (eg LED) is located physically close enough to its target key, that one at least users may reasonably infer which key is intended to be selected when its associated Indicator Means is activated. It is also preferable that one at least Indicator Means may be a LED (and/or other illumination means), and that when activated, said illumination means preferably may assist the user to insert the key in the target lock (eg in low levels of background light). In one at least embodiments of the invention, the use of the illumination means to facilitate selection of the key, may not function optimally in its other preferred role of facilitating illumination of target locks. The invention preferably allows for a Lock Illumination Means (48) that as a non-limiting example, preferably may be used to illuminate target locks. One at least Lock Illumination Means (48) is preferably attached to one at least KGM (4) by an Illumination Coupling Means (49). Said Illumination Coupling Means (49) preferably:- i) is resilient and/or flexible; and/or ii) includes a means (eg electrical conductors) to couple power between one at least KGM and one at least Illumination Means (48). One at least illumination means preferably may be reversibly held in place on one at least key rings (eg magnetic coupling, mechanical latch). One at least Illumination Means (48) preferably may be reversibly held in place on one at least key (eg magnetic and/or mechanical clasp that fits to one at least key shafts). Said reversible key attachment preferably may be arranged such that one at least Illumination Means may fall away from the key as the key is inserted into one at least locks. This preferably may enable one at least Illumination Means to be reversibly attached near the tip of the key during initial insertion of said key in a lock, preferably providing maximum lock illumination compared with illumination means that locate the light source in the key handle or on separate means (eg key tags with coupled LED). To facilitate magnetic coupling of one at least illumination means with a key (as a non-limiting example), it is preferable that part at least of one at least keys may be coated (eg electroplating) with a magnetic material. Another non-limiting example of coupling one at least Lock Illumination Means (48) to one at least Key Grouping Means preferably may include attachment to one at least Key Carriage Means (eg using similar method to attachment of Key Control means (5)).
- It is preferable that one at least External Force Means (30) may be attached (preferably reversibly) to one at least KGM. One non-limiting example preferably allows said External Force Means (EFM) to be fabricated into part at least of one at least Lock Illumination Means (48). One at least Lock Illumination Means (LIM) preferably includes a moulded shape (eg plastic injection moulding) that may be made to fit over the external surface of one at least Key Restraining Interface Means (KRIM) (11) such that the External Force means integrated into said LIM is guided to the target opening (29) in one at least KRIM (11).
- Charging Means (not shown) to recharge one at least rechargeable batteries that preferably may be attached to one at least KGM. This preferably may include as a non-limiting example, one at least known art mobile phone charging means integrated into one at least Key Grouping Means. Another non-limiting example preferably may include part at least of the recharging means, in one at least Key Control Means.
- One at least Key Carriage Means (9) preferably includes a suitable shape (56) to restrain said Key Carriage Means in one at least KGM Track Means (12a, 12b).
- It is preferable there is one at least KGM Extension Means (not shown) to permit one at least Second KGM to be coupled to part at least of the resources of:- one at least First KGM's and/or one at least KCM coupled to said First KGM. One non-limiting example is one at least electronic and/or mechanical, plug/socket means between said first and second KGM. Another preferred extension means is the use of wireless (eg bluetooth, zigbee)

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- between means electrically coupled to said first KGM and said second KGM. One at least second KGM's preferably may have its own power source.
- The KGM preferably may be fabricated such that it includes one at least Voids (40) that preferably may be enclosed, in part at least, on one at least surfaces, by a Cover Means (42a, 42b). One at least Cover Means is preferably reversibly held in place by Cover Attachment Means (46) (eg mechanical clasp means). One at least Cover Means (42a, 42b) preferably may include embedded electronics (eg cellular phone logic). There is preferably one at least Cover Electronic Interface Means (45a) to electrically connect devices in one at least Cover means (42a) with other KGM Electronics (eg embedded within Central Hub (8) and/or with one at least means attached to one at least KGM, eg one at least KCM (5).
 - One at least Void Electronic Means (43a, 43b) preferably may be accommodated in one at least voids (40). One at least Void Electronic Means preferably may interface to one at least central Hub Means (8) by one at least electrical conductor means (45b), that preferably may facilitate electrical connection to one at least means coupled to one at least KGM, eg one at least KCM (5).
 - One at least batteries (41) (that preferably may be rechargeable) preferably may be accommodated in one at least voids (40). There is preferably one at least battery interface means (44) to electrically couple one at least batteries with one at least KGM and/or one at least means coupled to said KGM.

A non-limiting means of fabricating one at least KGM's as depicted in Figure One preferably may include the fabrication of mouldings of a First Shape Means (55a) and a Second Shape Means (55b) and preferably fixing them together (eg via Central Hub Means 8) such that one at least voids (58) may be formed that permit the movement of enclosed conducting means (7, 7a, 7b, 7c). There is preferably a means to limit the divergence of one at least Shape Means (55a, 55b). A non-limiting preferred example of said Divergence Limitation Means preferably includes the use of one at least Key Restraining Interface Means (11). There is preferably a means to limit the convergence of one at least Shape Means (55a, 55b). A non-limiting preferred example of said Convergence Limitation Means preferably includes the use of one at least Key Carriage Means (11), in particular the track coupling means (56) of one at least Key Carriage Means.

Part at least of one at least means described for the embodiment of Figure One preferable may be included in one at least other embodiments of Key Grouping Means described in this specification and/or in said AU 03/01029.

A further preferred embodiment of the invention, referenced as Example Two, is now described with reference to Figure 2 of the drawings. In this example KGM, one at least keys (1a, 1b, 1c) are preferably able to move around the periphery (in part at least) of one at least KGM (4a) of Block Drawing 76. One at least keys is preferably attached (preferably reversibly) to one at least Key Carriage Means (9) permitting said movement around the periphery. One at least KGM Conducting Means of the previous example embodiment (referenced as Example One) are preferably adapted such they may extend (62) into one at least modified Key Restraining Means, referenced as a **Conducting Key Restraining Means** (60). One at least Conducting Key Restraining Means (CKRM) is preferably flexible and resilient and preferably includes one at least electrical conducting means (62) that is preferably an extension of the electrical conducting means preferably forming part of one at least KGM Conducting Means (7d).

The Key Restraining Means (6) of Example One preferably may terminate in one at least Restraining Termination Means (26) that is preferably reversibly attached to one at least Key Restraining Interface Means (11). One at least Conducting Key Restraining Means (60) of Example Two are preferably an integral part of one at least KGM (4a) at one end, and preferably terminates in one at least modified Restraining Termination Means, referenced as a **Key Clip Means** (61) at the other end.

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One at least Key Clip Means preferably includes one at least injection moulded plastic means, and one at least said moulded plastic means preferably encloses and/or bonds to, one end of one at least Conducting Key Restraining Means (60) as shown at region (85) of Block Drawing 79..

- 5 Said Key Clip Means (61) preferably includes one at least Indicator Means (3) (eg one at least LED's). Activation of said indicator means is preferably in part at least under the control of electronic electrically coupled to one at least KGM. One at least Key Clip Means (61) preferably reversibly attaches to one at least keys (1a, 1b, 1c).
- 10 **Block Drawing 78** of Figure Two depicts a section through a preferred example of said Key Clip Means (61). One at least Key Clip Means preferably includes a **Key Clip Means First Part** (64) that preferably may be applied to a first side of one at least keys, and a **Key Clip Means Second Part** (66) that preferably may be applied against a second side of said one at least keys.
- 15 Said Key Clip Means First Part (64) preferably includes:-
 i) one at least Indicator Means (3) that are preferably electrically linked by Conductor Means (63) to the one at least electrical conductors (62) of Conducting Key Restraining Means (60); and/or
 ii) Locking Means (69) to restrain said Key Clip Means Second Part (66), preferable by moving into Slot Means (68) of said Second Part (66), when said Second Part is inserted through the Hole Means (47) in one at least keys (1) and into Receptacle Means (85) of said First Part (64).
 Projection Means (73) of said second part (66) preferably may be pushed through Hole Means (47) in Key (1), mating with Receptacle Means (85) in said First Part (64).
- 20 Said First Part (64) is preferably linked to said Second Part (66) by a **Part Coupling Means** (86), for example, a length of flexible and resilient plastic. Said Second Part preferably includes a means to facilitate separation from said First Part when required. Non-limiting examples of said Separation Means (67a, 67b) preferably may include plastic and/or spring steel that preferably may be compressed when said Second Part (66) is coupled to said First Part (64), and preferably springs back towards its original shape when said Second Part (66) is released from said First Part (66).
- 25 **Block Drawing 75** shows said First Part (64) and said Second Part (66) joined together and fixing Key (1) between them.
- 30 **Block Drawing 89** is a cross section formed by a plane coming out of the page between C1 and C2 of Block Drawing 75, depicting one view of that portion of said Second Part (66) that remains on the side of the key handle away from said First Part. **Block Drawing 82** is a cross section formed by a similar plane passing through B1 and B2. It shows Projection Means (73) in Hole Means (47) of Key (1).
- 35 **Block Drawing 81** is a cross section formed by a plane coming out of the page between A1 and A2 of Block Drawing 75, depicting Locking Means (69) located in Slot Means (68) of Projection Means (73). As a non-limiting example, Locking Means (69) preferably may be released from Slot Means (68) by an **External Force Means** (30) inserted in **Opening Means** (72) moving Locking Means (69) into **Void Means** (71). Whilst not shown, this process preferably may be automated, for example, by using a similar SMA means (34), eg Nitinol Wire, as described in Example One to release Restraining Means (26) from Latching Means (28). Said External Force Means (30) preferably may be incorporated into one at least Lock Illumination Means (48), as a non-limiting example. One at least Lock Illumination Means (48) is preferably moulded to reversibly mate with one at least Key Clip Means First Parts (64) such that External Force Means (30) integrated into said Lock Illumination Means (48) is guided into Opening Means (72).
- 40 **Preferred Embodiment Example Three** is now described with reference to Figure Three of the drawings. In this example one at least Key Clip Means (61) preferably may be the same as Key Clip Means (61) described in the preceding Example Two.
- 45
- 50

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One at least Conducting Key Restraining Means (60a, 60b) preferably terminate at a First End at one at least Key Clip Means in preferably the same means described with reference to Example Two.

- 5 One at least Conducting Key Restraining Means (60a, 60b) preferably terminate at a Second End at one at least KGM (4b). The KGM (4b) of the present example is preferably integral with a Key Control Means (5a) and said Second End is preferably fixed in position relative to movement with its associated KGM (4b). One at least said Second Ends (111a, 111b) preferably terminates on a Flexible Printed Circuit Means (100). One at least Integrated Circuits (103), eg one at least address decoders, is preferably attached to said Flexible Printed Circuit Means (100). One at least
10 10 First Electrical Conductor Means (105) preferably connects one at least Second Ends (111a, 111b) to one at least Integrated Circuit (103). Electrical coupling between means attached to said Flexible Printed Circuit Means (100) and Key Control Means (5a) is preferably made by one at least Second Electrical Conducting Means (101). One non-limiting example of manufacturing a Key Grouping Means (4b) is depicted in Block Drawing 110, that shows a rolled up Flexible Printed Circuit Means (100) with the voids preferably filled and the KGM shaped by Injection Moulded Plastic (115), with example Conducting Key Restraining Means (60a & 60b) shown in section. The invention preferably allows for a Cable Separation Means (115) that preferably may be slid up and down one at least Conducting Key Restraining Means, for example to facilitate untangling of one at least Conducting Key Restraining Means. A Cable Separation Means (115a) is shown in cross section unpopulated. A Cable Separation Means (115b) is shown in cross section populated with Conducting Key Restraining Means (60a).

- Preferred Embodiment Example Four is now described with reference to Figure Four of the drawings. In this preferred embodiment the KGM and KCM are preferably integrated into a Key Wallet Means (150) that is preferably flexible and resilient in part at least. It is preferable that one at least keys attached to said Key Wallet Means (150) may be reversibly enclosed by the means of said Key Wallet Means. As a non-limiting example, First Flap Means (153a) preferably may be folded along a First Fold Means (155a) such that it encloses one at least keys (1a), in part at least. The invention preferably allows for one at least Second Flap Means (153b) that preferably may be folded along one at least Second Fold Means (155b) and preferably may enclose one at least keys, in part at least. There is preferably a means to reversibly hold one at least flap means in place. As a non-limiting example, a Receptacle Means (151), depicted by dotted line on the outside of said First Flap Means (155a), is preferably positioned for coupling with Projection Means (152), that is preferably attached to the inside of said Second Flap Means (153b). Said coupling preferably may take place, for example, when said First Flap Means (155a) is folded over one at least keys (1a) and said Second Flap Means (155b) is folded over both one at least keys and said First Flap Means (155a). A non-limiting example means of maintaining reversible coupling between said Receptacle Means (151) and said Projection Means (152) may be a press-lock means known to the art.
- 40 One at least Key Restraining Means (60a) preferably may terminate at a First End at one at least Key Clip Means (61a), as a non-limiting example, preferably as described for said Example Two and Example Three.

- 45 One at least Key Restraining Means (60a) preferably may terminate at a Second End (162a), preferably on a Key Printed Wiring Means (161), that is preferably flexible.

- 50 One at least Printed Wiring Means (161) preferably may attach to one at least Key Collation Means (160a, 160b). One at least Key Collation Means (165a, 165b) preferably may provide in part at least the functions of a Key Grouping Means (4c). One at least Key Collation Means (160a, 160b) is preferably flexible and/or resilient. One at least Key Collation Means (160a, 160b) preferably includes a Collation Indicator Means (175a, 175b) to preferably facilitate selection of one at least First Key Collation Means (160a) from one at least Second Key Collation Means (160b), when plural Key Collation Means (160a & 160b) are part of one at least Key Grouping Means (4c). The Key Collation Means depicted in the example shows Key Printed Wiring Means (161a, 161b) at each end of said

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Key Collation Means (160a). The invention preferably does not limit the number of positions and/or surfaces of one at least Key Collation Means used to attach Key Printed Wiring Means. The invention preferably allows that one at least Key Printed Wiring Means may be an integral part of one at least Key Collation Means. The invention preferably allows that one at least Key Collation Means may be an integral part of one at least Key Grouping Means. Activation of one at least Collation Indicator Means (eg LED) preferably may use similar means as determining which one at least of a plurality of Indicator Means (3) may be selected during the automated selection of one at least keys on one at least key Grouping Means.

10 The invention preferably allows that one at least Key Grouping Means includes one at least electrical conducting means to link the means coupled to one at least Key Collation Means with one at least Key Control Means.

15 One at least Power Means (eg battery) and Key Control Means preferably may be attached to one at least Key Wallet Means (150). As a non-limiting example, one at least Power means and/or Key Control Means are preferably fabricated into said Key Wallet Means (150) behind Key Grouping Means (4c). It is preferable that part at least of said Key Control Means may be accessible to the user on one at least External Surface Means (170) (eg the outside surface of one at least Key Wallet Means (150) in a location behind one at least Key Collation Means). One at least accessible Key Control Means preferably may include one at least of Display Means (171), Keyboard Means (172), Speaker Means (173) and/or Microphone Means (174).

20 The invention preferably allows that one at least Conducting Key Restraining Means (60) may be extended from one at least Key Wallet Means (150). Non-limiting examples of means to allow Key Restraining Means (60) to extend from Key Wallet Means (150) preferably may include bending one at least Conducting Key Restraining Means (60) as shown in **Block Drawing 180**; and/or providing a Hinge Means (182) as depicted in **Block Drawing 181**. One at least Hinge Means (182) preferably may be constructed from a Flexible Printed Wiring Means (182), that preferably includes one at least electrical conducting means to transfer one at least electrical signals between Key Printed Wiring Means (161) and Conducting Key Restraining Means (60).

25 Preferred Embodiment Example Five is now described with reference to Figure Five of the drawings, wherein one at least Key Wallet Means (200) preferably may be integrated together with one at least other Portable Means. Non-limiting examples of said Portable Means preferably may include one at least of:-

- a. Key Grouping Means (4c).
- b. Billfold (202).
- c. Digital Camera (203).
- d. Drivers Licence/ Credit Card Holder (204).
- e. Battery 207 (preferably embedded behind Card Holder (204).
- f. RFID Reader (205).
- g. Personal Interface Means (206) (eg Key Control Means, and/or PDA, and/or Cellular Telephone).

30 40 Non-limiting examples of functions coupled to one at least Personal Interface Means (206) preferably may include one at least of Display Means (171), Keyboard Means (172), Speaker Means (173) and/or Microphone Means (174).

45 Block Drawing 220 depicts a preferred non-limiting example of a Key Wallet arrangement that incorporates one at least other Portable Means.

50 One at least KGM and/or KCM preferably includes one at least security means to preferably deter theft (especially from pockets), as a non-limiting example, Security Device Means (250) is preferably an electronic means coupled to one at least Personal Items (255), (eg KCM, KGM, Cellular Phone,

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- Wallet) via **Cable Means** (251). One at least unauthorised attempts to remove one at least said Personal Items from a **First Location** (eg trouser pocket, handbag) to a **Second Position** (eg a thieves person) preferably may activate an **Alarm Means** (not shown). Said Alarm Means preferably may be coupled to one at least Security Device Means and/or Personal Items. As a non-limiting example, an attempt to remove Personal Item (255) preferably may tension Cable Means (251), preferably activating one at least means coupled to Security Device Means (250). As a non-limiting example, one at least Security Device Means (250) preferably may activate an alarm means coupled to said Security Device Means (150). As another non-limiting example, one at least Security Device Means (250) preferably may detect one at least intrusion attempts and signal one at least second means (eg Personal Item 255) to activate an alarm (preferably coupled to said Personal Item). Non-limiting means for one at least Security device Means (250) to communicate with one at least Personal Items (255) preferably may include electrically conductive and/or fiberoptic means along Cable means (251) and/or wireless means.
- 5 10 15 20 25 30 35
- Entry of a password means preferably may be required to inactivate Security Device Means (250) and/or to permit Personal Item (255) to extend cable Means (251). A non-limiting example of a password means preferably may include the **Password Activation Means** described earlier in this specification (for example, one may swipe their watch (that preferably includes a suitable RFID transponder) past one at least Personal Items (255), to preferably inactivate the protection provided by one at least Security Device Means (250).

Preferred Embodiment Example Six is now described with reference to **Figure Six** of the drawings. The Invention preferably allows that one at least keys may be stored in one at least Key Grouping Means (4d) that are preferably rigid, in part at least, and that preferably integrate a Key Control Means. Said Key Grouping Means preferably retains part at least, of one at least keys, within its enclosure. The preference is to retain all keys not currently in use, within said KGM enclosure. Block Drawing 270 shows a cross-section through a preferred example of KGM (4d). KGM Enclosure Means (300) preferably encloses one at least **Compartment Means** (301a). The number of Compartment Means are preferably not limited. The number of surfaces of one at least KGM (4d) that one at least Compartment Means may be located is preferably not limited. In the example drawing Three Compartment Means are shown located towards the **First Wide Surface** (275) of the KGM (4d) and Three Compartment Means are shown towards the **Second Wide Surface** (276) of KGM (4d). The number of keys that may be stored in one at least Compartment Means is preferably not limited, however, it is preferable that each key (1) may be allocated its own exclusive (at least temporarily) Compartment Means (301a). One at least Compartment Means is preferably open (and/or may be made to open) on part at least of the surface of its associated KGM (eg. to allow one at least keys to project/retract).

Block Drawing 288 is through a plane coming out of the page from Block Drawing 270 through points A1 and A2. There is preferably a means to project one at least keys from one at least Compartment Means and/or to retract one at least keys into said Compartment Means. A preferred non-limiting example of a Key Projection and/or Retraction Means is to use one at least Slide Means (305). There is preferably one Slide Means (305) for each Compartment Means (301). There is preferably a **Slide Conductor Means** (295) to electrically connect one at least Slide Means (305) with Key Control Means (and/or other electronics). A non-limiting example of said Slide Conductor Means is preferably a Strip of Flexible Printed Circuit. There is preferably a means to electrically and mechanically couple one at least keys (1a) to one at least Slide Means (305a). The preferred means is to use one at least Conducting Key Restraining Means (60a) that preferably terminates at a First End on a Key Clip Means (61a), preferably using means previously described in this specification. The Second End of said Conducting Key Restraining Means preferably terminates on one at least Slide Means (305). Electrical Means of said Second End, preferably maintain continuity with one at least Slide Conductor Means (295). One at least Slide Means (305) is preferably coupled to one at least Handle Means (315) that preferably may be used to move one at least Slide means (305) in a direction to facilitate projection of one at least keys from the associated KGM and/or move one at least

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Slide Means (305) in a direction to facilitate retraction of one at least keys within the associated KGM.

- 5 Block Drawing 280 is an external view of First Wide Surface (275) of KGM (4d). It depicts one at least Handle Means (315) projecting from the KGM enclosure. Said handle projection is preferably sufficient to enable a human to move said Handle Means (315). One at least Handle means (315) preferable project from one at least KGM through one at least Slot Means (310). One at least Handle Means (315) preferably may traverse one at least Slot Means (310) when moving its associated Slide means (305). There is preferably one at least Slide Limit Means to prevent one at least Slide Means leaving one at least Compartment Means. Non-limiting examples of Slide Limit Means preferably may include one at least of i) End of Slot Means (330); ii) Limitation imposed by length of one at least Slide Conductor Means (295); and/or iii) Stop Means (320) of Block Drawing 285. One at least Stop Means (320) preferably may be a projection means (eg plastic bump).
- 10 15 One at least Handle Means (315) preferably includes an Indicator Means (3), preferably in a location visible to a user of the KGM (4d). Said indicator means (3), eg LED, preferably provides part at least of the functions described for Indicator Means (3) in other embodiments of the invention. In the present example, said Indicator Means (3) preferably advises the user which handle to slide to access one at least keys.
- 20 25 The invention preferably allows that projection and/or retraction of one at least keys from one at least KGM (eg suitably modified KGM 4d) preferably may include automated means. As a non-limiting example, one at least KGM may include one at least motors and/or gear means and/or electronic latch means (as non-limiting examples) to facilitate movement of one at least Slide Means (305).
- 30 A described example of an Indicator Means is an Illumination Means (eg Light Emitting Diode). The invention preferably allows for other Indicator Means, that as non-limiting examples, preferably may include one at least of:-
- a. Vibrating Means.
 - b. Projecting Means (eg one at least Indicator Means may be a component (eg plastic) that pops up when active and may be retracted (preferably automatically) when inactive).
 - c. Audible Means.
 - d. The action of one at least keys being made available to the user may be an Indicator Means. For example, in the preceding description of a key being made to project using automated means, said projection preferably may be one at least Indicator Means.
- 35

- The next example embodiment is described with reference to Figure Seven of the drawings. The invention preferably allows that one at least KGM may accommodate one at least keys (400) with a reduced handle size. For example, the reduced handle size preferably may permit, more keys to fit into a predetermined sized KGM, for example, the KGM (4d) described with reference to Figure Six of the Drawings. Said Key (400) preferable includes an Electronic Key ID Means (2). One at least Reduced Handle Keys (400) preferably may be attached to one at least Key Clip Means as described elsewhere in this specification.
- 40 45 The invention preferably allows for a Key Handle Enlarger Means (405) to be attached (preferably reversibly) to one at least Reduced Handle Keys (400). One at least Key Handle Enlarger Means (405) is preferably physically linked to the associated KGM (4d) by Handle Cable Means (406). One at least Key Handle Enlarger Means (405) preferably may include an Illumination Means (420) and preferably may include a Reduced Handle Key Restraining Means (410) to preferably reversibly maintain the coupling between one at least Reduced Handle Keys (400) and said Key Handle Enlarger Means (420).

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As a non-limiting example, one at least Reduced Handle Key Restraining Means (410) preferably may mate (preferably reversibly) with Key Slot Means (411) in one at least Reduced Handle Keys (400).

- The invention preferably allows for a means to facilitate removal of one at least Key Handle Enlarger
5 Means (420) from one at least Reduced Handle Keys (400). As a non-limiting example one at least
Slide Means (315) preferably may be adapted to include one at least Slide Projection Means (330) that
preferably may enter one at least Key Handle Enlarger Means (420), preferably as Key (400) is being
placed back into the associated Compartment Means, preferably moving one at least Reduced Handle
Key Restraining Means (410) from one at least Key Slot Means (411).

10

- It is understood that variations in the figures or described elsewhere in this specification are for
illustrative purposes only and that many other variations will be apparent to one skilled in the art. It
will also be understood that the specification and figures are illustrative of the present invention and
that other embodiments within the spirit and scope of the invention will suggest themselves to those
skilled in the art.

15

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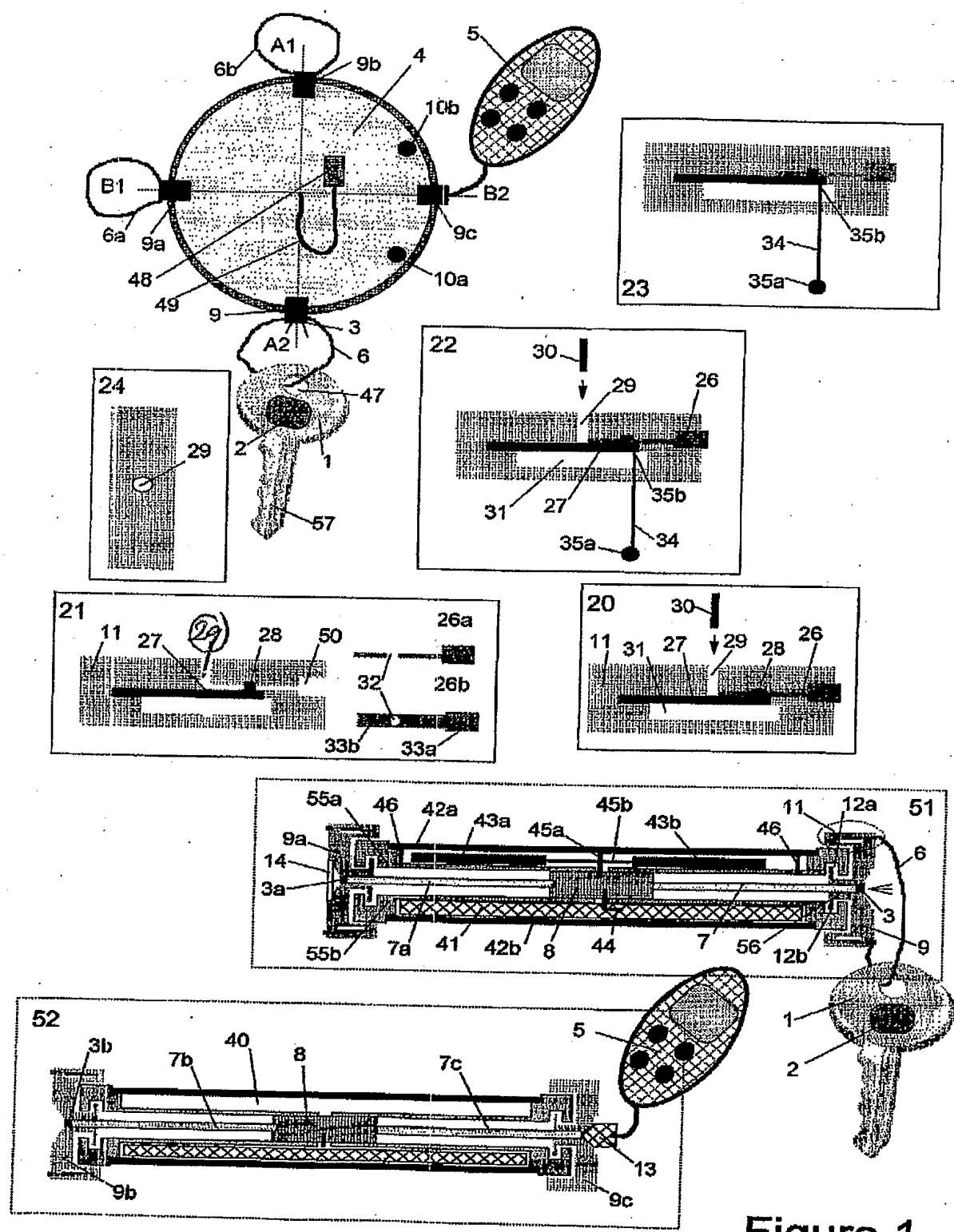


Figure 1

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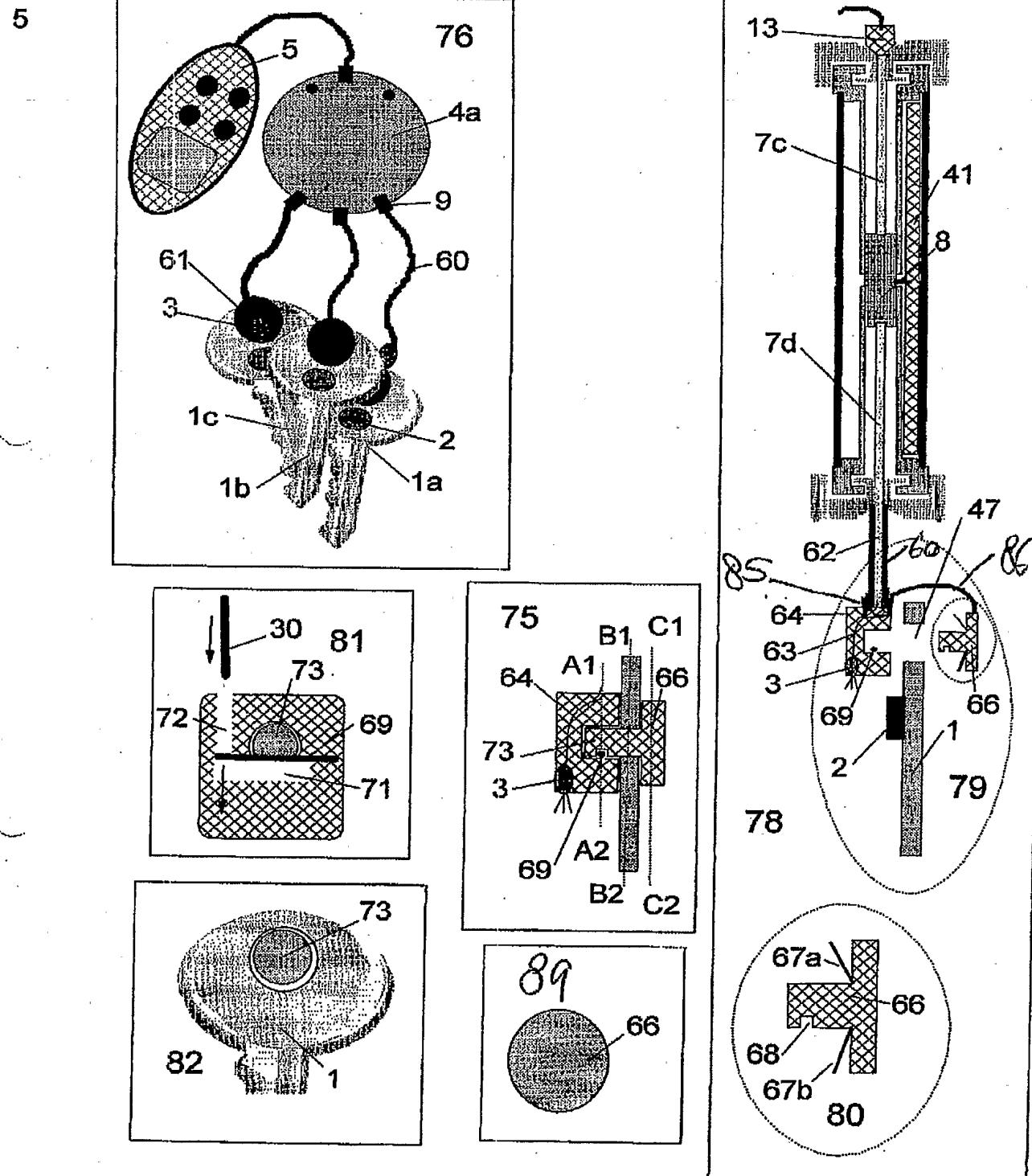


Figure 2

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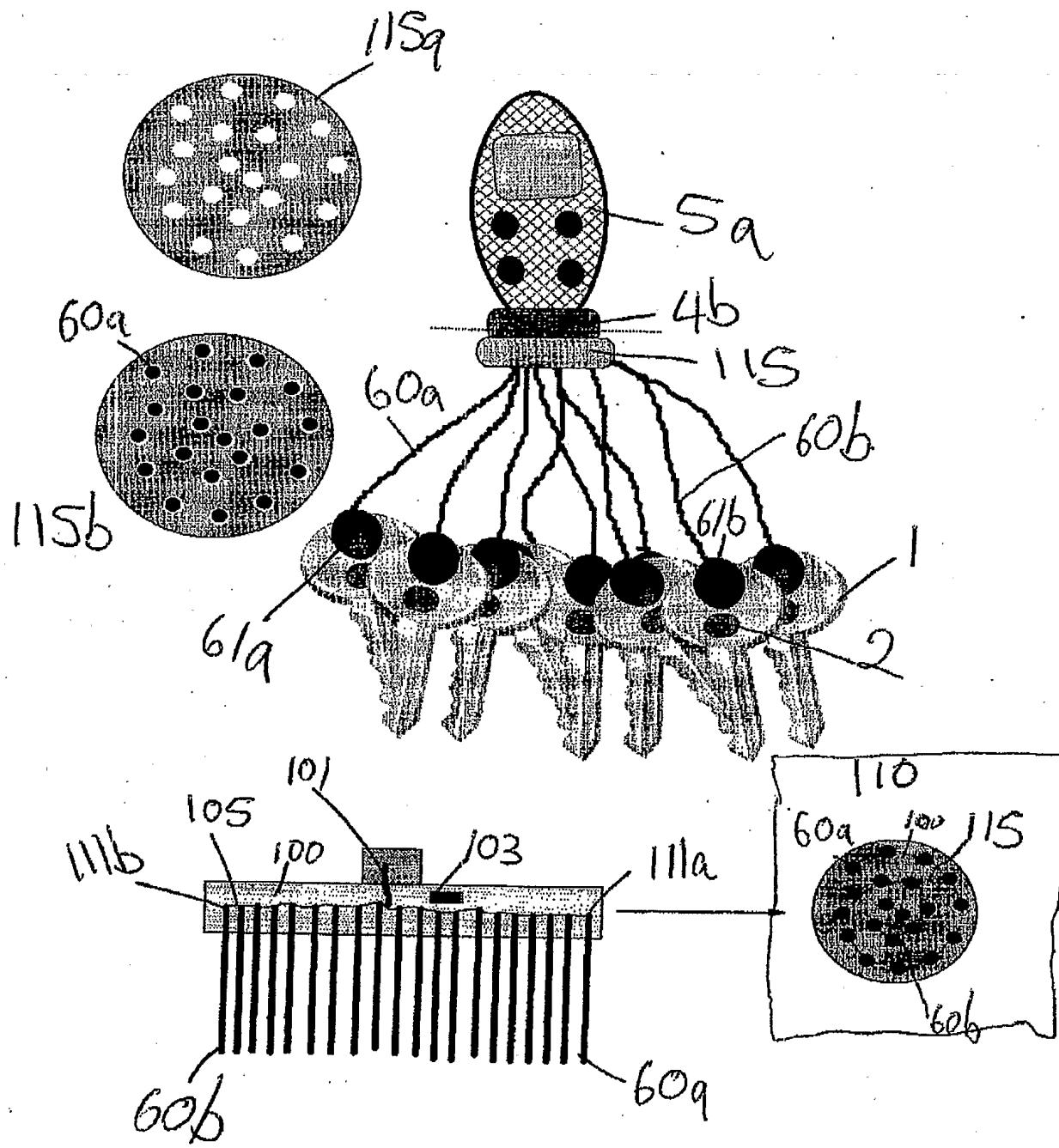


Figure 3

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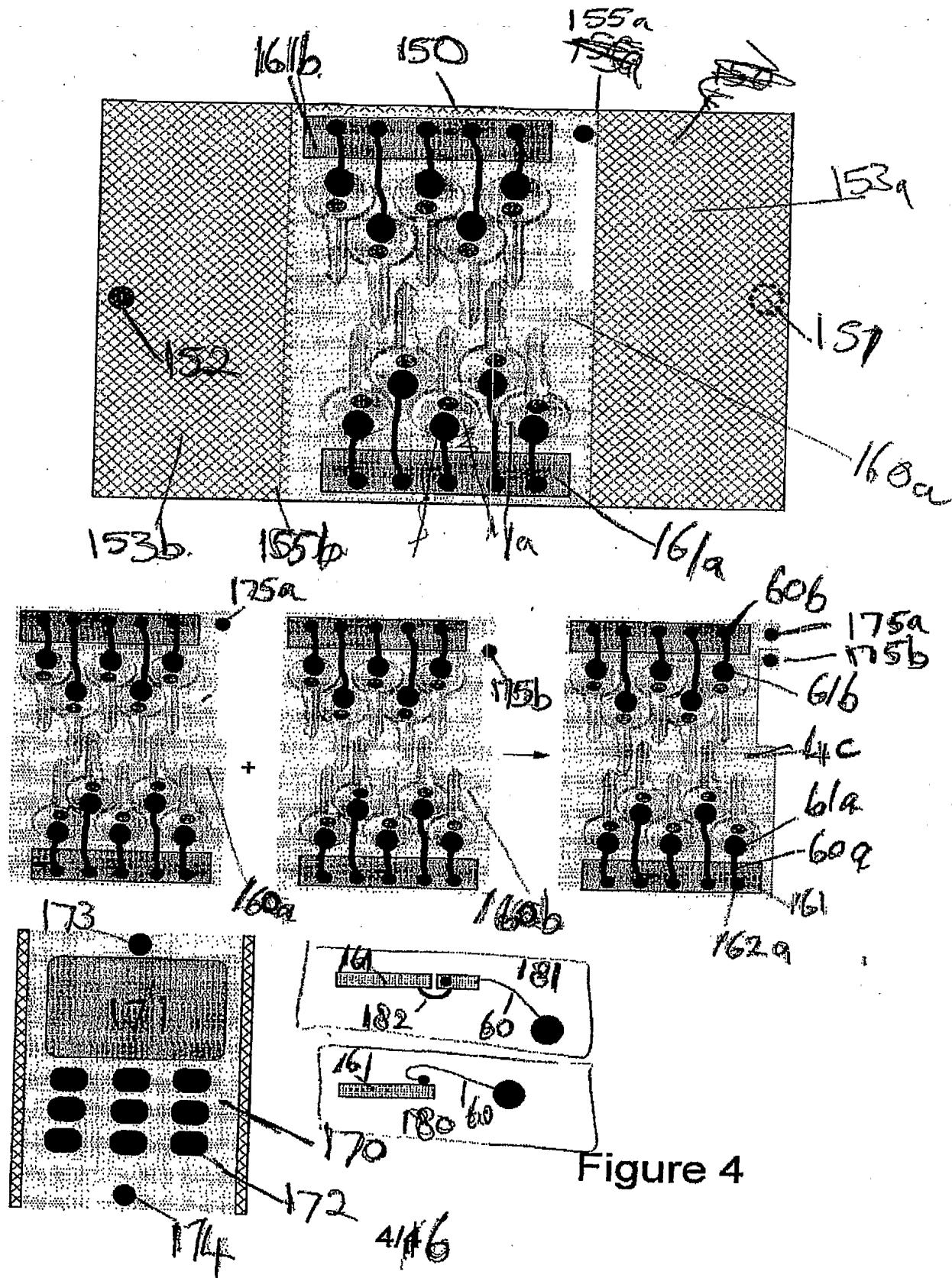


Figure 4

Means to keep keys in place.
Security system - eg rfid in watch to release wallet from pocket. Detect attempt to remove from rfid in trouser.
Battery may attach key ring, Key tag may attach key ring, tools may attach.

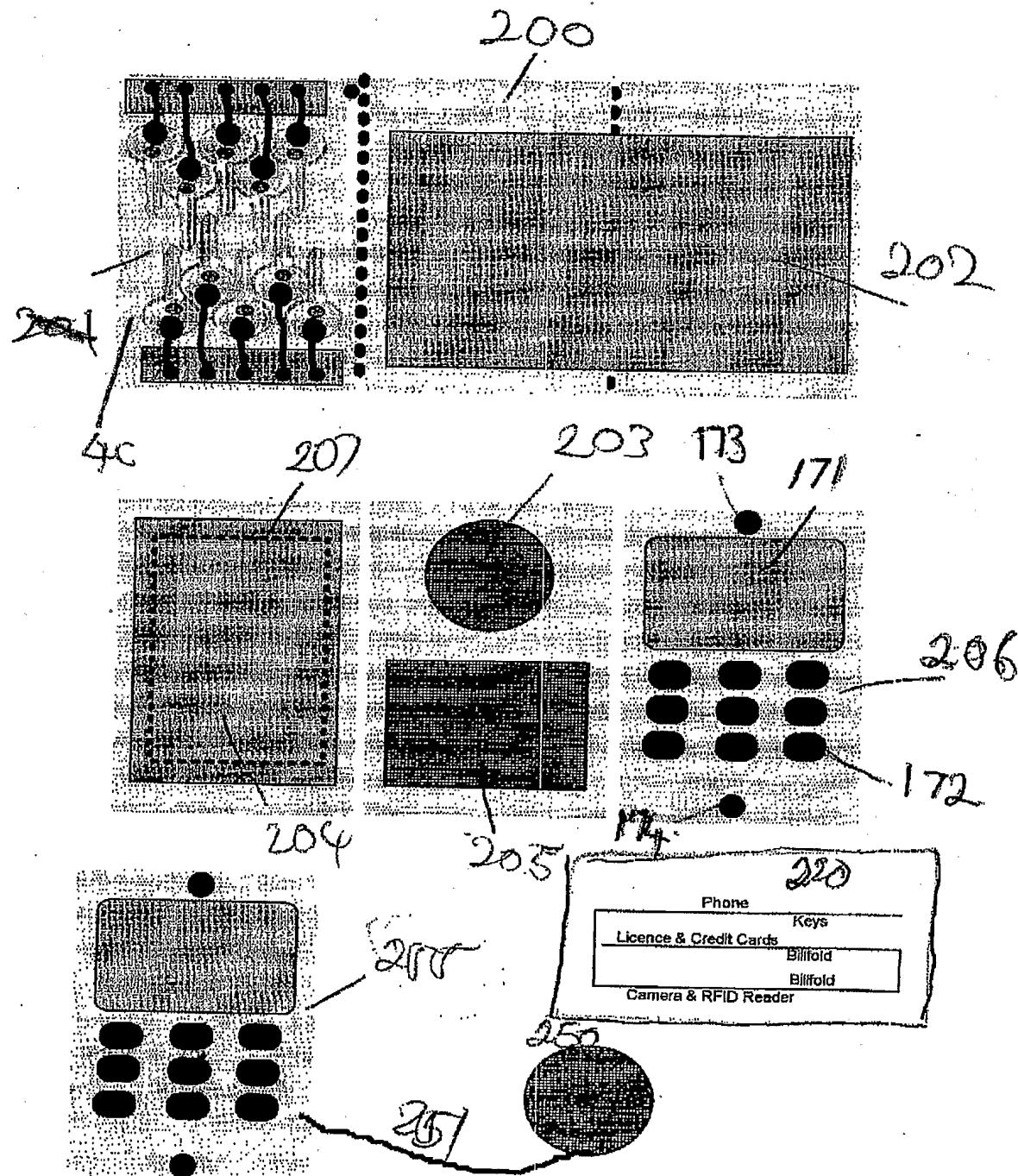


Figure 5

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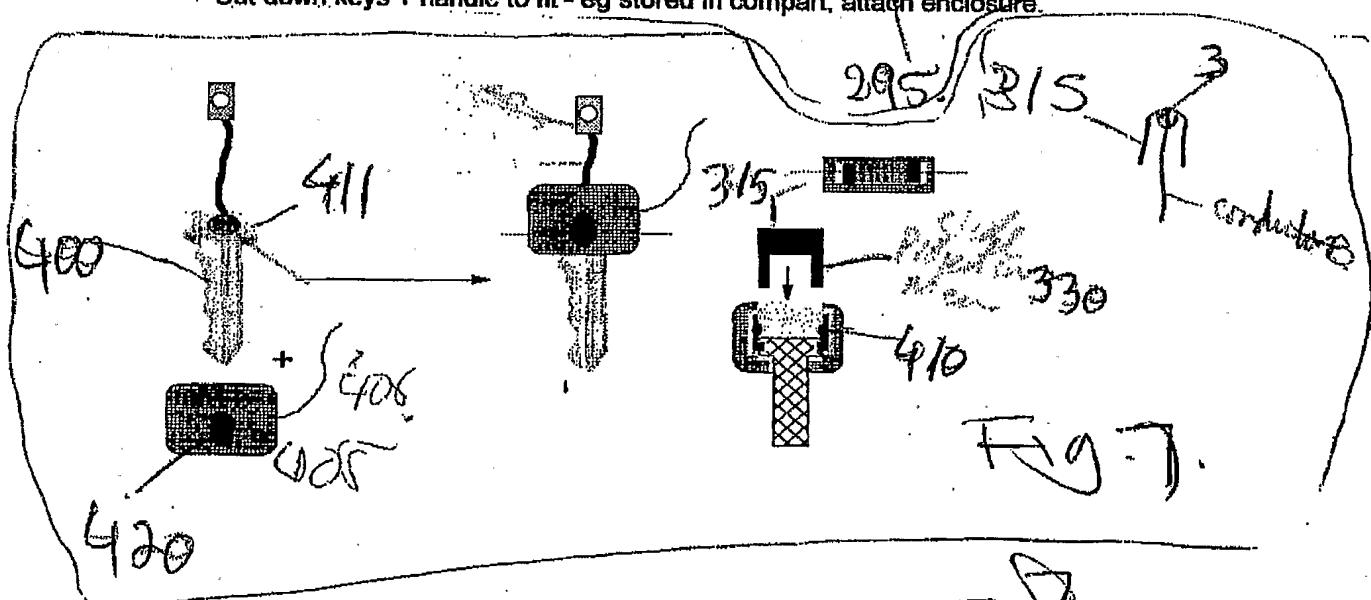
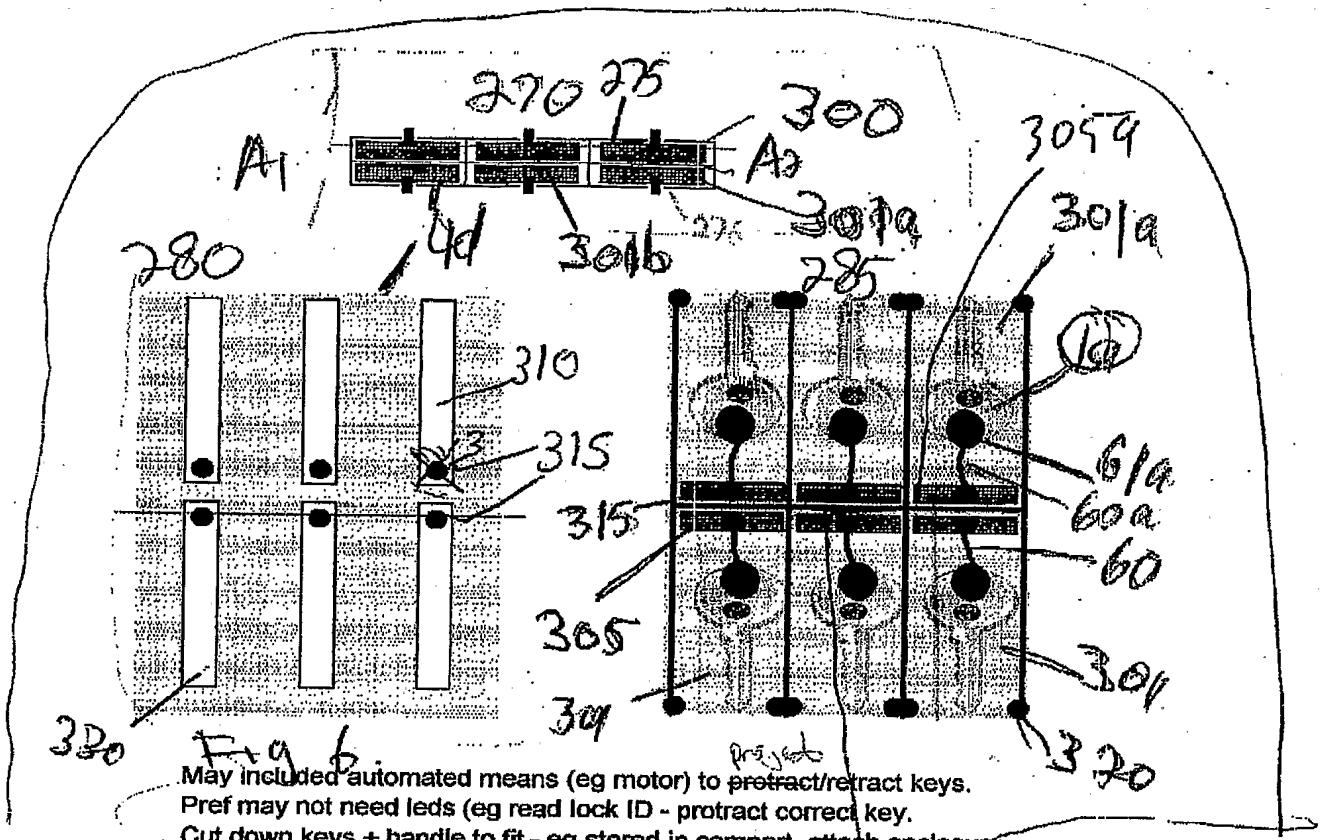


Figure 6

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